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10/784,158	02/24/2004	Masahiro Hagihara	1785.1007	8286

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EXAMINER	
ROSS, DANA	

ART UNIT	PAPER NUMBER
3722	

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,158	HAGIHARA ET AL.	
	Examiner	Art Unit	
	Dana Ross	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,11 and 12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,11 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "rotation locking member" of claims 1 and 11 and the "elastic element" of claim 11 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not clear from the disclosure what how the "rotation locking member is supported on said rotating member via an elastic element.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 4,733,050 (Grafius, hereafter '050).

'050 teaches an apparatus for automatically changing a tool tip 12 member from a robot, said robot operating in the condition that the tool tip member is threadedly mounted on a tool body 18 mounted on a robot arm 20 (see fig. 1, col. 4, lines 39-45, for example); a tip member changing jig 110 disposed in an operational area of the robot (see col. 5, lines 34-36 and fig. 1, for example); a controller for controlling the robot (see col. 5, lines 36-40, for example).

'050 teaches the base the jig 110 with, for example, bracket 132 and vertical plate 126 which both can be considered a "base member", and two members 38 and 40 supported by the bracket 132 and vertical plate 126, the loading spindle 138 rotatable through rotary motor 130, and unloading spindle 144 located at a position offset from the rotation axis of loading spindle 138, and the tip holding member of unloading spindle 140 adapted to hold the tool tip member 12 so that a central axis of relative rotation for threadedly mounting the tool tip member to the tool body extends substantially parallel to the rotation axis of loading spindle 138 and rotation of the tool tip member 12 with respect to the rotating member of the unloading spindle 138 is locked (see figure 11, col. 9, lines 26-49, for example).

'050 teaches the controller controls the operation of the robot arm to move the tool body around the rotation axes of loading and unloading spindles while keeping the tool body in contact with the tool tip member held by the tip member holding means for mounting and demounting the tool tip member 12 (see col. 5, lines 32-40, for example).

'050 teaches the robot arm controlled by a central processing unit which is capable of ascertaining the position of welding arm 10 to a reference location (see col. 4, lines 60-66, for example) and which controls the locating devices 128 and 146 (used to detect "rotational phase") (see col. 5, lines 36-43, and col. 9, lines 26-68, for example).

Examiner notes that the tip member holding means as shown in figure 11 wherein the spindles 140 and 138 hold the tool are provided for tool exchange, therefore the there must be a rotation locking member for locking the relative rotation of the tool tip member with respect to the tip member holding means and an elastic element within the tool tip member holding means.

In the event Applicant does not agree that '050 teaches the locating devices and controller including "detecting a rotational phase" is well known in the art for use with a robotic machine tool, Applicant is referred to the below 35 USC 103 rejection.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over '050 in view of Applicant's Admitted Prior Art.

See above 35 USC 102 rejection.

'050 is silent as to detecting the phase rotation.

Examiner notes that it is notoriously well known in the art for robots to detect the phase rotation as is evidenced by Applicant's Admitted Prior Art (see disclosure page 10, lines 19-23) which states "Generally, robots must recognize a phase rotation".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the operation of the robot as taught by '050 to include the well known feature of determining the phase rotation for the purpose of correctly and accurately aligning the tool with the tool changer for efficient machining.

8. Claims 1, 3, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over '834 in view of '050.

'834 teaches a tool clamping mechanism for a robot (see col. 1, lines 7-10, for example), a tip member jig (see figure 1), a base member (reference number 13 or 14), a rotating member (arm 10) supported about the base member about a rotation axis and with tool holding means 12 for holding the tool (tip member) and disposed at a position that is offset from the rotation axis of the rotating member (arm 10) (see figures 1 and 2, col. 3, lines 6-25, for example); the tool holding means 12 hold the tool so that a central axis of relative rotation extends substantially parallel to the rotation axis and rotation of the tool tip member with respect to the rotating member is locked (see col. 4, lines 8-26, for example).

It is noted that though '843 does not expressly disclose a "controller for controlling operation of said robot", Examiner notes that it is inherent in the machine tool art that when a robot, or any machine, is used in the machining process, as is currently taught by '843, a generic "controller" of some form must be present to operate the machine/robot.

'834 is silent as to the use of a controller with the robot.

'050 teaches it is well known in the art to us a programmable controller with a robot (see col. 4, lines 60-66, for example).

'050 teaches the controller controls the operation of the robot arm to move the tool body around the rotation axes of loading and unloading spindles while keeping the tool body in contact with the tool tip member held by the tip member holding means for mounting and demounting the tool tip member 12 (see col. 5, lines 32-40, for example).

'050 teaches the robot arm controlled by a central processing unit which is capable of ascertaining the position of welding arm 10 to a reference location (see col. 4, lines 60-66, for example) and which controls the tool changer, and with the rotation and locating of the tool with

the tool changer would include detecting the rotational phase (see col. 5, lines 36-43, and col. 9, lines 26-68, for example).

In the event Applicant does not agree that controllers including "detecting a rotational phase" is well known in the art for use with a robotic machine tool, Applicant is referred to the below 35 USC 103 rejection in view of Applicant's Admitted Prior Art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the operation of the generic robot as taught by '834 to include the well known feature of determining the phase rotation for the purpose of correctly and accurately aligning the tool with the tool changer for efficient machining.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the generic robot as taught by '834 to include the specific robot with controller as taught by '050 for the purpose of providing a robotic welding arm that is controlled by a central processing unit which is capable of ascertaining the position of the welding arm by reference to a reference location and moving the welding arm in response to programmed movement instructions and controlling the feed and retraction of the tool (see '050, col. 4, lines 60-66, for example).

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over '834 in view of '050 in further view of Applicant's Admitted Prior Art.

See above 35 USC 102 and 103 rejections.

'834 is silent as to detecting the phase rotation.

Examiner notes that it is notoriously well known in the art for robots to detect the phase rotation as is evidenced by Applicant's Admitted Prior Art (see disclosure page 10, lines 19-23) which states "Generally, robots must recognize a phase rotation".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the operation of the robot as taught by '834 to include the well known feature of determining the phase rotation for the purpose of correctly and accurately aligning the tool with the tool changer for efficient machining.

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the amended claims and new ground(s) of rejection.

However, in an attempt to expedite prosecution, Examiner will address several issues raised by Applicant.

Page 5 of Applicants arguments discussed the rejection under Grafius and states "Examiner has apparently characterized the loading spindle 138 as the rotation member of claim 1...".

Examiner notes that in the previous and above rejection it was pointed out that both the loading spindle 138 and unloading spindle 140 are tip holding means in that both spindles are for holding the tool tip member 12.

Applicant is referred to figure 11 of Grafius to see that there are various rotating members shown, such as of the rotated gears 136, 134, rotary motor 130 with rotary parts, for rotating the rotatable gears 136, 134, unloading spindle 140 and loading spindle 138.

Considering the base member to be bracket 132, each of the rotated gears 136, 134,parts of the rotary motor 134 connecting to the loading spindle, and the loading spindle are all supported by the base member about "rotation axis". As a specific example to meet the limitation of "a rotating member rotatably supported by said base member about a rotation axis, and tip member holding means for holding said tip member and disposed on said rotating member at a position that is offset from said rotation axis of said rotating member", Applicant is referred, for example, to the rotated gear 134 as a specific rotating member (connecting with rotated gear 136) rotatably supported by the base member 132 about a rotation axis and a tip member (unloading spindle) 140 holding means for holding said tip member 140 and disposed on said rotating member (through the gear relationship between gears 136 and 134 within the base member 132) at a position that is offset from said rotation axis of said rotating member (see figure 11 where the rotation axis of the tip member 140 is offset from the rotational axis of the gear 134).

Regarding Applicants asserts to the previous claim 2 (now incorporated into claim 1), it is not clear what is being asserted. Applicant asserts that Grafius does not disclose or suggest a "controller which controls the operation of said robot art to move said tool body around said rotation axis while keeping the tool body in contact with said tool tip member by said tip member holding means".

Examiner refers applicant to column 4, line 60-66 and column 5, lines 36-43, for example on the presence of a controller which controls the robot arm to move the tool body around the rotation axis. As is shown in figure 11, the unloading and loading spindles provide for a chamber 142, 144 which hold the tool body. The rotation of the unloading and loading spindles 138,140

(tool tip members) will rotate the tool body located inside and will rotate the tool body along with the spindles.

Applicant provides no further argument regarding the previous (and current) rejection under Watson in view of Grafius.

Applicant asserts that neither Watson nor Grafius teachs the new limitation of a "rotation locking member for locking the relative rotation of the tool tip member with respect to the tip member holding means". It appears that Applicant is asserting that Grafius does not provide any structure to secure the tool 12 in the spindles 140 or 138 therefore providing for no rotation of the tool to the welding arm, therefore providing no transfer of tools. Examiner disagrees. Examiner notes that the tip member holding means as shown in figure 11 wherein the spindles 140 and 138 hold the tool are provided for tool exchange, therefore the there must be a rotation locking member for locking the relative rotation of the tool tip member with respect to the tip member holding means.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is 571-272-4480. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dmr

BOYER D. ASHLEY
SUPERVISORY PATENT EXAMINER